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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,615	10/31/2001	Hugh Holbrook	M-11463 US	1977

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EXAMINER
JEAN GILLES, JUDE

ART UNIT	PAPER NUMBER
2143	

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/001,615	HOLBROOK, HUGH
	Examiner	Art Unit
	Jude J Jean-Gilles	2143

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2001*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 October 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This office action is responsive to communication filed on 10/312001.

Claim Rejections - 35 USC § 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims 1-6, 10, 14, 15, 16, 17 and 18 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Vahalia et al (U.S. Patent No. 6,625,591) in view of O'Toole,

Jr. et al (U.S. Patent No. 6,279,112).

Regarding claim 1: Vahalia et al disclose the invention substantially as claimed.

Vahalia et al teach a method for transforming one or more lists for a data

communications system into a single list, each list of the one or more lists including a

plurality of entries, the method comprising:

removing non-terminating entries from the plurality of entries in the one or

more lists, the removing each non-terminating entry removing all but a last non-

terminating entry in any of the one or more lists (*fig. 4, items 61-64; column 6, lines

7-27*); and

eliminating from the plurality of entries one or more entries that provide for

one or more impossible actions (*column 6, lines 7-17*);

Vahalia et al further teach the removing of non-terminating entries and the eliminating of one or more entries that provide for impossible actions (*column 6, lines 7-17; note the impossible action is when trying to remove the last entry or make the last entry equal to zero*), but fail to teach producing a single list preserving tracing of the entries in the single list to the plurality of entries.

In the same field of endeavor, O'Toole, Jr. et al teach "*a method to permit the inquiry of which access tickets (entries) are in the user's access control list and to display the icons corresponding to each of the access tickets...*" [*see O'Toole, Jr.; column 6, lines 27-31*].

Accordingly, it would have been obvious to one of ordinary skill in the networking art at the time the invention was made to have incorporated O'Toole, Jr. et al's teachings of the racing of the entries in the list with the teachings of Vahalia et al, for the purpose of improving the ability of a network "...*to allow access to the directory to satisfy file access requests for searching ..*"as stated by Vahalia in lines 35-38 of column 2.

Regarding claim 2: The combination Vahalia - O'Toole, Jr. discloses the method of Claim 1 wherein each of the plurality of entries provides an indication of a source of the entry with an action code to create a pairing [*see Vahalia; column 5, lines 40-67*]. By this rationale **claim 2** is rejected.

Regarding claim 3: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 1 wherein the preserving tracing permits determining statistical

parameters of the data communication system [*see* Vahalia; *column 5, lines 40-67*]. By

this rationale **claim 3** is rejected.

Regarding claim 4: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 3 wherein the statistical parameters include counts of matched entries

[*see* Vahalia; *column 5, lines 40-67*]. By this rationale **claim 4** is rejected.

Regarding claim 5: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 1 wherein the removing and the eliminating is performed at a network

element of the data communication system [*see* Vahalia; *fig. 4, items 61-68; column 6,

lines 7-27*]. By this rationale **claim 5** is rejected.

Regarding claim 6: The combination Vahalia - O'Toole, Jr. discloses the

method of Claim 1 wherein the list of entries is an Action Control

List (ACL) and wherein each entry is an Action Control Entry (ACE) [*see O'Toole, Jr.;

column 4, lines 10-16*]. By this rationale **claim 6** is rejected.

Regarding claim 10: The combination Vahalia - O'Toole, Jr. discloses a data

routing system to administer entries, the data routing system comprising:

a network element configured to receive a plurality of Action Control Lists

(ACLs) organized to hold a plurality of Action Control Entries

(ACEs) [*see* Vahalia; *fig. 1, items 24-26; column 3, lines 61-67*];

a processor configured to receive the plurality of ACLS holding the plurality of

ACES [*see* Vahalia; *fig. 1, item 22*], the processor adapted to:

remove any non-terminating entries from the plurality of ACES in the

plurality of ACLS, wherein the removal of each non-terminating entry removes all but a

last non-terminating entry in any of the ACLS [*see Vahalia; fig. 4, items 61-64; column

6, lines 7-27*]; and

eliminate from the ACES one or more ACES that provide for one or more

impossible actions if present, wherein the removal of non terminating entries and the

elimination of one or more ACES that provide for impossible actions produce a single

list with entries, the single list configured to preserve tracing of the entries in the single

list to the plurality of ACES [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.;

column 6, lines 27-31*]. By this rationale **claim 10** is rejected.

Regarding claim 14: The combination Vahalia - O'Toole, Jr. discloses the data

routing system of Claim 10 wherein the one or more ACES provide for a plurality of

actions [*see O'Toole, Jr.; column 5, lines 45-67*]. By this rationale **claim 14** is rejected.

Regarding claim 15: The combination Vahalia - O'Toole, Jr. discloses the data

routing system of Claim 10 wherein the one or more ACES provide for one or more of:

encryption and decryption, web caching, tunneling, redirection to a

predetermined router interface, redirection to a separate processor or line card for one

or more of the encryption, decryption, web caching, and tunneling [*see O'Toole, Jr.;

column 6, lines 16-31*]. By this rationale **claim 15** is rejected.

Regarding claim 16: The combination Vahalia - O'Toole, Jr. discloses a

computer system comprising:

a processor [*see* Vahalia; *fig. 1, item 22*]; and

a memory, the memory including instructions, the processor for executing the

instructions, the instructions including encoding instructions for one or

more lists, each list including a plurality of entries [*see* Vahalia; *fig. 1, item 20-26;*

column 3, lines 60-67; column 4, lines 1-54], the encoding instructions including:

skip entry removal instructions for removing non-terminating entries

from the plurality of entries in the one or more lists, the removing each non-terminating

entries removing all but a last non-terminating entry in any of the one or more lists [*see*

Vahalia; fig. 4, items 61-64; column 6, lines 7-27]; and

impossibility entry elimination instructions for removing from the plurality of

entries one or more entries that provide for one or more impossible actions, wherein the

removal of non-terminating entries and the removal of one or more entries that provide

for impossible actions produce a single list preserving tracing of the entries in the single

list to the plurality of entries [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.;*

column 6, lines 27-31]. By this rationale **claim 16** is rejected.

Regarding claim 17: The combination Vahalia - O'Toole, Jr. discloses a

computer program product, the computer program product comprising :

signal bearing media bearing digital information adapted to include

programming, the digital information including:

a block configured to remove non-terminating entries from the plurality of entries

in the one or more lists, the removing each non-terminating entry removing all but a last

non-terminating entry in any of the one or more lists; and

a block configured to eliminate form the plurality of entries one or more entries

that provide for one or more impossible actions; wherein:

the removal of non-terminating entries and the elimination of one or more entries

that provide for impossible actions produce a single list preserving tracing of the entries

in the single list to the plurality of entries [*see Vahalia; column 6, lines 7-17*], and [*see*

O'Toole, Jr.; column 6, lines 27-31]. By this rationale **claim 17** is rejected.

Regarding claim 18: The combination Vahalia - O'Toole, Jr. discloses a

network element configured to transform one or more lists for a network, each list

including one or more entries, the network element comprising:

means for removing non-terminating entries from the one or more entries in the

one or more lists, the removing each non-terminating entry removing all but a last non-

terminating entry in any of the one or more lists [*see Vahalia; fig. 4, items 61-64; column*

6, lines 7-27]; and

means for eliminating from the one or more entries each entry that provides for

one or more impossible actions, wherein the means for removing of non-terminating

entries and the means for eliminating each entry that provides for impossible actions

provide a means for producing a single list preserving tracing of the entries in the single

list to the one or more entries [*see Vahalia; column 6, lines 7-17*], and [*see O'Toole, Jr.;*

column 6, lines 27-31]. By this rationale **claim 18** is rejected.

3.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vahalia et

al (U.S. Patent No. 6,625,591) and O'Toole, Jr. et al (U.S. Patent No. 6,279,112), in

view of Ng et al (U.S. Patent No. 5,838,874).

Regarding claim 7: The combination of Vahalia - O'Toole, Jr. discloses the

invention substantially as claimed. The combination teaches the method of Claim 1

wherein the one or more lists of data are action control lists (ACLs), the method further

comprising the step of combining at least a first and a second ACL by combining each

non-terminating entry in a first ACL with each entry in a second ACL [*see O'Toole, Jr.;*

column 8, lines 49-63]; However the combination fails to disclose repeating the

combining recursively to a third or more ACLS, if present, until each ACL is collapsed

into the first ACL to create the single list .

In the same field of endeavor, Ng et al disclose"..*a recursive process to combine*

frames and using an interpolation in the frames from first to last..."[*see Ng; column 35,*

lines 45-67].

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated Ng's teachings of using a

recursive process on the ACLs with the teachings of Vahalia - O'Toole, Jr. for the

purpose of improving the ability of a network "...*to allow access to the directory to*

satisfy file access requests for searching .."as stated by Vahalia in lines 35-38 of column

2.

4.   Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Vahalia et al (U.S. Patent No. 6,625,591), O'Toole, Jr. et al (U.S. Patent No. 6,279,112),

and Ng et al (U.S. Patent No. 5,838,874), in view of Kloth et al (U.S. Patent No.

6,643,260)

Regarding claim 8: The combination of Vahalia - O'Toole, Jr.- Ng discloses the

invention substantially as claimed. The combination teaches the method of Claim 7 ,

but fails to teach the single list holds a plurality of Action Control Entries (ACEs) that are

codeable into a first match engine capable of computing a large number of Boolean

expressions in parallel and returning an index of first matching ACES.

In the same field of endeavor, Kloth et al disclose "... a data vector engine in a

TCAM to resolve matching, giving priority to the first match to provide a way of

returning an index of the first matching.." [*see Kloth; column 8, lines 28-67; column 9,*

lines 1-37].

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated Kloth et al's teachings of

combining the ACL and the first matching engine with the teachings of Vahalia -

O'Toole, Jr.- Ng for the purpose of improving the ability of a network "...*to allow access*

to the directory to satisfy file access requests for searching .."as stated by Vahalia in

lines 35-38 of column 2.

Regarding claim 9: The combination of Vahalia - O'Toole, Jr. – Ng - Cloth

discloses the method of Claim 8 wherein the first match engine is implemented

as one of a ternary content addressable memory (TCAM) and a hardware device

capable of computing a large number of Boolean expressions in parallel and returning

an index of first matching ACES [*see Kloth; column 8, lines 28-67; column 5, lines 46-*

67; column 6, lines 1-16]. By this rationale **claim 9** is rejected.

5.   Claims 11, 12, and 13are rejected under 35 U.S.C. 103(a) as being unpatentable

over Vahalia et al (U.S. Patent No. 6,625,591) and O'Toole, Jr. et al (U.S. Patent No.

6,279,112), in view of Kloth et al (U.S. Patent No. 6,643,260).

Regarding claim 11: The combination of Vahalia - O'Toole, Jr.- Kloth discloses

the invention substantially as claimed. The combination teaches the data routing

system of Claim 10, but fail to expressly disclose a hardware device coupled to receive

the single list with entries, the hardware device being a parallel-first match engine.

In the same field of endeavor, Kloth et al disclose "... a TCAM aggregate table .."

[*see Kloth; column 8, lines 28-67; column 9, lines 1-37*].

Accordingly, it would have been obvious to one of ordinary skill in the networking

art at the time the invention was made to have incorporated Kloth et al's teachings of a

TCAM with the teachings of Vahalia - O'Toole, Jr. for the purpose of improving the

ability of a network "...*to allow access to the directory to satisfy file access requests for searching* .."as stated by Vahalia in lines 35-38 of column 2.

Regarding claim 12: The combination of Vahalia - O'Toole, Jr.- Kloth teaches the data routing system of Claim 11 wherein the hardware device is one of a content addressable memory and a ternary content addressable memory [*see Kloth; fig. 4A, item 88; column 118, lines 17-35*]. By this rationale **claim 12** is rejected.

Regarding claim 13: The combination of Vahalia - O'Toole, Jr.- Kloth teaches the data routing system of Claim 1 I wherein the single list with entries is coded for presentation to the hardware device [*see Kloth; column 118, lines 17-35*]. By this rationale **claim 13** is rejected.

Conclusion

6.   Any inquiry concerning this communication or earlier communications from examiner should be directed to Jude Jean-Gilles whose telephone number is (571) 272-3914. The examiner can normally be reached on Monday-Thursday and every other Friday from 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wiley, can be reached on (571) 272-3923. The fax phone number for the organization where this application or proceeding is assigned is (703) 305-3719.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.
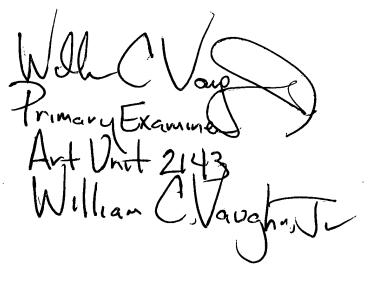

Jude Jean-Gilles

Patent Examiner

Art Unit 2143

JJG

        January 14, 2005